What is claimed is:

1. A working end of a surgical instrument for delivering energy to tissue, comprising:

paired first and second jaw members moveable between an open position and a closed position; and

at least one jaw defining a first body portion having a variable resistance and a second body portion of a conductive material coupled to a voltage source.

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2. The working end of Claim 1 wherein said at least one jaw defines a surface engagement plane for engaging tissue, said engagement plane carrying an exposed surface of said first body portion.

3. The working end of Claim 1 wherein said at least one jaw defines a surface engagement plane for engaging tissue, said engagement plane carrying an exposed surface of said second body portion.

4. The working end of Claim 1 wherein said at least one jaw defines a surface engagement plane for engaging tissue, said engagement plane carrying an exposed surface of both said first body portion and said second body portion.

5. The working end of Claim 1 wherein said first body portion is of a ceramic composition.

6. The working end of Claim 1 wherein said first body portion is an elastomeric composition.

7. The working end of Claim 6 wherein said elastomeric composition is silicone-based.

8. The working end of Claim 6 wherein said first body portion is of an open cell composition.

9. The working end of Claim 8 further comprising a fluid source coupled to said open cell composition.

10. The working end of Claim 6 wherein said first body portion is of a closed cell composition.

11. The working end of Claim 1 wherein said first body portion has an electrical resistance that increases with an increase in temperature thereof.

12. The working end of Claim 1 wherein said first body portion has an electrical resistance that decreases with an increase in temperature thereof.

13. The working end of Claim 1 wherein said first body portion defines a switching range at which its electrical resistance substantially increases or decreases in a selected temperature range.

14. The working end of Claim 13 wherein said switching range falls between about 40° C. and 200° C.

15. The working end of Claim 1 wherein said first body portion has a resistance to electrical current flow therethrough that decreases with pressure applied thereto.

16. The working end of Claim 1 wherein said first body portion has a resistance to electrical current flow therethrough that increases with pressure applied thereto.

17. The working end of Claim 1 wherein said second body portion at least partly comprises a thin metallic coating in said engagement plane.

18. A method for controlled application of energy to tissue, comprising the steps of:

providing a working end with opposing jaws for engaging tissue, at least one jaw defining an engagement plane that contacts tissue, said at least one jaw having a first body portion comprising a variably resistive material and a second body portion comprising at least one conductor coupled to a voltage source;

engaging tissue between the paired jaws; and

delivering Rf energy to said at least one conductor wherein energy application to said tissue is modulated by changes in resistance of said first body portion.

19. The method of Claim 18 wherein said first body portion has a resistance that varies with a change in temperature, and the delivering step comprises the step of reducing ohmic heating of tissue as the temperature of the first body portion increases.

20. The method of Claim 18 wherein said first body portion has a resistance that varies by greater than about 5 per cent with a change in temperature of less than about 5° C., and the delivering step comprises the step of reducing ohmic heating as the resistance of said first body portion increases.

21. The method of Claim 18 wherein said first body portion defines a switching range in which its resistivity is increased to substantially terminate electrical current flow therethrough, and the delivering step comprises the step of eliminating ohmic heating of tissue as the temperature of the first body portion reaches said switching range.

22. The method of Claim 21 wherein said first body portion substantially terminates electrical current flow therethrough in any selected switching range between about 40° C. and 200° C.

23. The method of Claim 18 wherein said first body portion defines has a resistance that varies with a change in temperature, and the delivering step comprises the step of increasing ohmic heating of tissue as the temperature of the first body portion increases.

24. The method of Claim 18 wherein said first body portion has a resistance that varies with a change in pressure applied thereto by the engaged tissue, and the delivering step comprises the step of increasing ohmic heating of tissue as said pressure increases.

25. The method of Claim 18 wherein said first body portion has a resistance that varies with a change in pressure applied thereto by the engaged tissue, and the delivering step comprises the step of decreasing ohmic heating of tissue as said pressure increases.

26. The method of Claim 18 further comprising the step of applying energy to said tissue by means of conduction of heat through the engagement surface from said first and second body portions.

27. A working end of a surgical instrument for delivering energy to tissue, comprising:

a jaw structure comprising first and second jaw members moveable between an open position and a closed position;

first and second polarity electrodes carried in said jaw structure, each such electrode operatively connected to a voltage source; and

a portion of said at least one jaw comprising a material having a variable resistance to electrical current flow therethrough.

28. The working end of Claim 27 wherein each jaw member defines an engagement plane for engaging tissue, at least one engagement plane having an exposed surface of said material having a variable resistance.

29. The working end of Claim 27 wherein at least one engagement plane carries an exposed surface portion of a first or second polarity electrode.

30. The working end of Claim 27 wherein an engagement plane carries a surface portion of said material having a variable resistance and a first or second polarity electrode.

31. The working end of Claim 27 wherein said material having a variable resistance is selected from the class consisting of materials that vary in resistance in response to temperature changes therein and materials that vary in resistance in response to pressures applied thereto.

32. The working end of Claim 27 wherein said material having a variable resistance is an elastomer.

33. The working end of Claim 27 wherein said material having a variable resistance is of a silicone-based composition.

34. The working end of Claim 27 wherein said material having a variable resistance is an open cell sponge composition.

35. The working end of Claim 27 wherein said material having a variable resistance is a conductively doped zirconium oxide.

36. The working end of Claim 27 wherein said material having a variable resistance has first and second end portions coupled to said first or second polarity electrodes, respectively.

37. The working end of Claim 36 wherein said material having a thermally sensitive resistance is surrounded by an electrically insulative layer except for said first and second end portions thereof.

38. The working end of Claim 37 wherein said electrically insulative layer is at least partly an air space.

39. The working end of Claim 27 wherein said material having a variable resistance is selected from the class of materials consisting of positive temperature coefficient materials and negative temperature coefficient materials.

40. A working end of a surgical instrument for delivering energy to tissue, comprising:

first and second jaw members moveable between an open position and a closed position, each jaw defining a jaw surface for engaging tissue;

a first body portion extending inwardly of at least one jaw surface that comprises a material having a resistance to electrical flow therethrough that varies with pressure applied thereto; and

a conductive portion carried at an interior of said at least one jaw surface that is operatively connected to a voltage source.

41. The working end of Claim 40 further comprising a second body portion of a material having a resistance to electrical flow therethrough that varies with temperature, said second body portion extending inward of said first body portion.

42. The working end of Claim 40 wherein said first body portion has a resistance to electrical flow therethrough that decreases with pressure applied thereto.

43. The working end of Claim 40 wherein said first body portion has a resistance to electrical flow therethrough that increases with pressure applied thereto.

44. The working end of Claim 40 wherein said first body portion is an open cell sponge-type material.

45. The working end of Claim 44 further comprising a fluid source coupled to said an open cell sponge-type material for providing fluid flow thereto.

46. The working end of Claim 40 wherein said outer body portion is a closed cell sponge-type material.

47. A working end of a surgical instrument for delivering energy to tissue, comprising:

first and second jaw members moveable between an open position and a closed position, each jaw defining a jaw surface for engaging tissue;

a first body portion extending inwardly of at least one jaw surface that comprises a material having a resistance to electrical flow therethrough that is variable;

a second body portion of at least one jaw comprising a material that has a selected substantial resistance to electrical flow therethrough; and

a third body portion of said at least one jaw comprising a conductive material operatively connected to a voltage source.

48. The working end of Claim 47 wherein said second and third body portions are operatively connected in series to the voltage source.